

REMARKS

As the Examiner will note, claims 1-4, 6-8, 12 and 13 have been amended, claims 5, 10, 11 and 14 have been cancelled and claims 15-17 have been added to the present application. Accordingly, claims 1-4, 6-9, 12, 13 and 15-17 are presently under consideration in the present application.

The Rejections

Claims 1-2 and 4-14 are rejected under 35 USC 103(a) as being unpatentable over Jonas et al. (US 2002/173579) in view of either Babinec et al. (US 6,203,727) or Fries et al. (US 2003/0196962).

Claim 3 is rejected under 35 USC 103(a) as being unpatentable over Jonas et al. in view of either Babinec et al. or Fries et al. and further in view of Kelley et al. (US 2003/0065090).

These rejections are respectfully traversed.

Argument

The present invention is directed to a method for producing an organic solvent dispersion of an intrinsically conductive polymer wherein the dispersion is passed through a column filled with an ion exchange resin whereby water which is present in the aqueous colloidal dispersion is substituted by an organic solvent in such a way as to reduce the water content below 1%. None of the references relied upon by the Examiner disclose, teach or even remotely suggest that the de-ionizing step conducted in a specific method for producing an organic solvent dispersion of an intrinsically conductive polymer, is performed by a column method. As noted on page 7, lines 22-26 of the present application, removal of cations from the intrinsically conductive polymer is accomplished most effectively by the passing of liquid, that is, by passing an aqueous colloidal dispersion of the intrinsically conductive polymer through a column filled with an ion exchange resin.

Jonas is relied upon by the Examiner to disclose a process for preparing a dispersion or a solution containing an optionally substituted polythiophene in an organic solvent comprising a) adding a water-miscible organic solvent or a water-miscible solvent mixture to an aqueous

dispersion or solution comprising optionally substituted polythiophenes, and b) removing at least some of the water from the mixture resulting from step a), and thereby forming the dispersion or the solution. Clearly, Jonas fails to disclose, teach or suggest that the de-ionizing step is performed by a column method.

Recognizing the deficiencies in Jonas, the Examiner relies upon Babinec to teach that it is known at the time of the invention to employ a column method of ion exchange to treat a solution containing doped polyaniline or polythiophene (see Example 1 in Col. 11 of Babinec). The Examiner also relies upon Fries to teach a process for removing toxic ions from water using an ion exchange resin column (see page 2, col. 1, paragraph [0029]). However, the processes in both Babinec and Fries involving the use of columns are so completely different from the process of the present invention that one skilled in the art would not contemplate that utilizing the column method in the process of the present invention would enable the effective and efficient method for producing an organic solvent dispersion of an intrinsically conductive polymer as defined by the present invention.

In the Office Action letter the Examiner alleges that Babinec teaches that it was known at the time of the invention to employ a column method of ion exchange to treat a solution containing doped polyaniline or polythiophene and Fries teaches a process for removing toxic ions from water using an ion exchange resin column. However, in Example 1, Babinec employs ion exchange to treat a solution containing sulfinated polycarbonate (i.e., a dopant). Also, the method of Fries does not relate to the process of the present invention. Thus, one skilled in the art would not be led by Babinec and Fries to use a column method of ion exchange instead of a batched method as disclosed in the method of Jonas. Moreover, Babinec and Fries do not suggest or teach the advantages of a column method over a batch method, such as the efficiency of removal of cation and water content of the resulting dispersion. Thus, even though, for sake of argument, a person skilled in the art could introduce the column method of Babinec and Fries into the method of Jonas, one skilled in the art would not foresee the advantageous results by making such a substitution, as has been shown by the present invention.

Concerning the rejection of claim 3, the Examiner, recognizing that none of Jonas, Babinec and/or Fries mentions the use of an ultrafiltration step, has further relied upon Kelley to allegedly fill this deficiency. Kelley teaches that purification may also include the removal of ions by techniques such as de-ionization or by ultrafiltration, in a process for forming polyaniline coating compositions (see paragraph [0027]). Thus, Kelley teaches that after completion of the polymerization, the resulting mixture which contains the polyaniline particles may be purified to remove unreacted reagents or reaction by-products by methods known in the art. Thus, the teaching of Kelley does not relate to a step of de-ionizing an aqueous colloidal dispersion of an intrinsically conductive polymer in order to remove free ions, excess dopant and cations adhering to the intrinsically conductive polymer. Clearly, the further reliance upon Kelley does not render obvious the Applicants' inventive contribution.

Double Patenting Rejection

Claims 1 and 5-14 have been provisionally rejected by the Examiner on the ground of Non-Statutory Obviousness-type Double Patenting as being unpatentable over claims 1, 7, 8, 9 and 11-13 of co-pending application No. 12/376,941. This rejection is respectfully traversed.

Because the double patenting rejection is provisional in nature because it is not based upon conflicting, allowable claims, it is believed that no comments need be made at this time concerning the provisional nature of the rejection. In any event, in an effort to expedite prosecution of the present application, the Applicants are submitting herewith a Terminal Disclaimer which will obviate the potential double-patenting rejection.

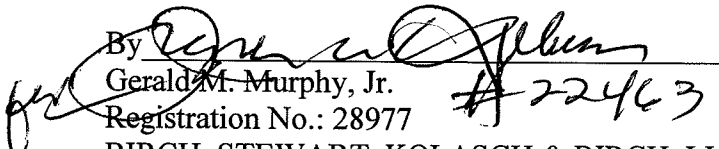
Accordingly, in view of the above amendments and remarks reconsideration of the rejections and allowance of all of the claims of the present application are respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Joseph A. Kolasch, Registration No. 22463, at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

By 
Gerald M. Murphy, Jr.
Registration No.: 28977 #22463
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, VA 22040-0747
703-205-8000

Attachments: Terminal Disclaimer

JOSEPH A. KOLASCH
REG. NO. 22,463